

#### РОССИЙСКАЯ ФЕДЕРАЦИЯ -СОЕДИНЕННЫЕ ШТАТЫ АМЕРИКИ

#### RUSSIAN FEDERATION -UNITED STATES OF AMERICA





## **MEMORANDUM OF AGREEMENT**

Between the Department of Energy of the United States of America

and the Ministry of the Russian Federation for Civil Defense Affairs, Emergencies and Elimination of Consequences of Natural Disasters

ON COOPERATION IN RESEARCH ON RADIATION EFFECTS FOR THE PURPOSE OF MINIMIZATION OF CONSEQUENCES OF RADIOACTIVE CONTAMINATION ON HEALTH AND ENVIRONMENT

#### MEMORANDUM OF AGREEMENT

Between the Department of Energy of the United States of America and the Ministry of the Russian Federation for Civil Defense Affairs, Emergencies and Elimination of Consequences of Natural Disasters on Cooperation in Research on Radiation Effects for the Purpose of Minimization of Consequences of Radioactive Contamination on Health and Environment

#### Purpose:

The purpose of this Memorandum of Agreement is to establish a framework for the receipt, handling, distribution, and general accountability of the funding provided by the U.S. Government Executive Agent, the U.S. Department of Energy to support both collaborative research activities and administration of those activities approved by the Joint Coordinating Committee for Radiation Effects Research (JCCRER) that was established to implement the Binational Agreement on Radiation Effects Research signed January 14, 1994.

#### Parties:

The responsible parties shall be for the United States, its Executive Agent the U.S. Department of Energy (U.S. DOE). For the Russian Federation, the responsible party is the Ministry of the Russian Federation for Civil Defense Affairs, Emergencies and Elimination of Consequences of Natural Disasters (EMERCOM).

#### Scope:

The scope of the Memorandum of Agreement will cover all funds transferred by the U.S. DOE for support funding purposes to be utilized as part of JCCRER approved research and administrative activities.

#### **Areas of Agreement:**

- 1. The U.S. DOE will provide support funding for the first year (April 1, 1995 to March 31, 1996), and thereafter renewable annually by either the JCCRER Executive Committee Co-chairs joint approval or the Executive Agents joint approval, to be disbursed on a semi-annual basis as defined below. For the first year support funding is for research activities for Research Directions 1 and 2 as outlined in the Memorandum of the First Meeting of the JCCRER on October 24 25, 1994. Up to \$300,000 will be allocated to be used solely for the implementation of research proposals and feasibility studies in accordance to project implementation plans approved by the JCCRER Executive Committee at the February 14 16, 1995 meeting, and attached as Annex I. Funds will be allocated in the following manner: up to \$150,000 for Direction 1 for the period April 1, 1995 to March 31, 1996, shall be provided to the Ural's Research Center for Radiation Medicine in Chelyabinsk and up to \$150,000 for Direction 2 for the period April 1, 1995 to March 31, 1996, shall be provided to the Biophysics Institute Branch N1 in Ozersk (Chelyabinsk-65).
- 2. The U.S. DOE will also provide funding of up to \$100,000 for support funding of administrative activities on management and oversight to the designated EMERCOM contractor Institute of Nuclear Safety (IBRAE) of the Russian

Academy of Sciences. Management and oversight support funding shall be provided on a semi-annual basis in accordance to the timeframe specified in item 1, above.

- 3. As the U.S. Executive Agent, U.S. DOE funds will be transferred directly to the responsible Russian Institutes specified in items 1 and 2 above, after approval and authorization by EMERCOM as the Russian Executive Agent. EMERCOM shall provide authorization for transfer of funds on a semi-annual basis after reception and approval of quarterly reports of the responsible Institutes.
- 4. The U.S. DOE and EMERCOM will separately incur the costs to establish and support the activities of the Scientific Review Group (SRG) respectively, as outlined in the Memorandum of Meeting of the JCCRER on October 24 25, 1994, and the Memorandum of Meeting of the JCCRER Executive Committee on February 14 16, 1995 (Annex I).
- 5. Any support funding (assistance) provided under this Memorandum of Agreement shall be subject to the provisions of the Agreement between the Government of the United States of America and the Government of the Russian Federation Regarding Cooperation to Facilitate the Provision of Assistance dated April 4, 1992, unless provided otherwise in this Memorandum of Agreement.

#### Oversight:

Oversight for the U.S. DOE funds will be provided as described in Annex II outlining the guidelines for the disbursement, allocation, and oversight of funds.

#### **General Provisions**

Cooperation under this Agreement will be in accordance with the laws and regulations under which each party operate. Funding (assistance) shall be provided subject to the availability of appropriated funds and the mutual agreement of the Parties.

#### **Entry into Force and Termination:**

This Memorandum of Agreement shall enter into force upon the later date of signature of both parties and remain in force for one year and annually thereafter and until either the U.S. DOE or the Russian Federation Executive Agent decide to terminate it. This Agreement may be amended at any time by mutual agreement of the parties.

This Agreement may be terminated by either party upon ninety (90) days written notice of termination of the other party.

for the Russian Federation

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for the United States

Jan O'Tonle



между Правительством Российской Федерации

и

Правительством Соединенных Штатов Америки

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СОТРУДНИЧЕСТВЕ В ОБЛАСТИ ИЗУЧЕНИЯ РАДИАЦИОННЫХ ВОЗДЕЙСТВИЙ С ЦЕЛЬЮ МИНИМИЗАЦИИ ВЛИЯНИЯ ПОСЛЕДСТВИЙ РАДИОАКТИВНОГО ЗАГРЯЗНЕНИЯ НА ЗДОРОВЬЕ ЧЕЛОВЕКА И ОКРУЖАЮЩУЮ СРЕДУ

## AGREEMENT

between the Government of the United States of America

and

the Government of the Russian Federation

on

COOPERATION IN RESEARCH ON RADIATION EFFECTS FOR THE PURPOSE OF MINIMIZATION OF CONSEQUENCES OF RADIOACTIVE CONTAMINATION ON HEALTH AND THE ENVIROMENT

## МЕМОРАНДУМ второго рабочего совещения

Исполнительного Комитета ОКК ИРВ

# MEMORANDUM of Second Meeting

OF THE EXECUTIVE COMMITTEE OF THE JCC RER

14-16 февраля 1995 г. ИБРАЭ, Москва 14-16 February, 1995 IBRAE, Moscow

# MEMORANDUM of Second Meeting

## of the Executive Committee of the JCC RER

The Executive Committee to the Joint Coordinating Committee for Radiation Effects Research held discussions in accordance with the agenda of the meeting. The discussions on each of the subject areas identified below resulted in the following conclusions.

#### RESEARCH GUIDELINES

Dr. Terry Thomas presented the final proposed revisions to the guidelines for conducting joint scientific research under the Agreement. The Executive Committee accepts the revisions and will forward the modified guidelines to the JCCRER in accordance with the stipulations adopted by the JCCRER on October 25, 1994.

#### RESEARCH PROJECTS

The Executive Committee concluded that Projects 1.1, 1.2, 2.1, and 2.2 should be adopted and implemented in accordance with the protocols for feasibility of research as developed by the co-principal investigators for each project research team (PRT).

The Executive Committee has adopted the attached implementation plans and schedules for each project (1.1, 1.2, 2.1, and 2.2). The implementations plans stipulate the progress requirements and the documentation required during the first year of the feasibility study in each of these subject areas.

Regarding research project 2.3, it was decided to delay approval and implementation of this project. The EC has concluded that project 2.3 should be revised at the U.S. workshop in March 13-15, 1995 and submitted to the EC for formal approvals by April 15, 1995.

With respect to Direction 3, the EC has concluded that no definitive projects in either 3.1 or 3.2 should be formally approved at this time. The United States delegation presented "concept papers" for revised approaches to projects under 3.1 and 3.2. Members of the EC, Dr. Kiselev of the Ministry of Health and Dr. Anisimova of the EMERCOM, emphasized the necessity of Project 3.1 preservation, as a separate direction being an important part of works

within the Agreement to support studies on directions 1 and 2. Both sides agree to further develop approaches for research related to area 3.1 for consideration by August 1, 1995. For area 3.2, the Russian side agreed in principle with the concept paper, however, the U. S. side will refine the concept paper and further identify two or three subject areas under 3.2 for future collaboration. The U.S. side has proposed a limited workshop to further define areas of mutual research. The EC concluded that its findings will be reported to the JCCRER by March 15, 1995 in accordance to its stipulations of October 25, 1994.

#### JCCRER IMPLEMENTATION PLAN

The EC reviewed stipulations A through D of the JCCRER memorandum of Meeting dated October 25, 1994, and reports the following:

Stipulations A and B required the development of funding mechanisms to support research. The EC concluded that both parties would provide the equivalent of at least \$1 Million U.S. Dollars for Research Directions 1 and 2 during the period March 1, 1995 through February 29, 1996. The U.S. Executive Agent (Department of Energy) will allocate up to \$400,000 of direct financial support and assistance to be authorized for the use by the Russian Executive Agent (EMERCOM).

The allocation of the money should be distributed as follows:

- Administration. controls and oversight \$100,000
- UCRM (Direction 1) \$150,000
- FIB-1 (Direction 2) \$150,000

All funding support from the U.S. Department of Energy shall be on a pro-rata basis during the year.

Regarding stipulation C, the EC has approved two workshops, one in the U.S. to be held March 13-15, 1995 and one in St. Petersburg to be held in June 1995. The U.S. workshop has final approval, and funding has been assured by the U.S. Executive Agent. The Russian Executive Agent (EMERCOM) will organize the Russian Workshop and the U.S. will provide financial assistance up to \$20,000 which should be taken from Administration, controls and oversight funds of \$100,000.

Regarding stipulation D, the EC has determined that each party will independently approve and fund the organization of Scientific Review Groups. The EC discussed the timing and arrangements for the next JCCRER meeting. It was concluded that at least six months should expire beyond the projected initiation of projects on March 1, 1995 to ensure that adequate

progress has occurred. The Russian Executive Agent (EMERCOM) will propose the dates and location after September 1, 1995.

For the Russian Federation

Leonid A. Bolshov Co-chairman EC

February 16, 1995

For the U.S.

Harry J. Pettengill
Co-chairman EC

между Правительством Российской Федерации

и

Правительством Соединенных Штатов Америки

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СОТРУДНИЧЕСТВЕ В ОБЛАСТИ ИЗУЧЕНИЯ РАДИАЦИОННЫХ ВОЗДЕЙСТВИЙ С ЦЕЛЬЮ МИНИМИЗАЦИИ ВЛИЯНИЯ ПОСЛЕДСТВИЙ РАДИОАКТИВНОГО ЗАГРЯЗНЕНИЯ НА ЗДОРОВЬЕ ЧЕЛОВЕКА И ОКРУЖАЮЩУЮ СРЕДУ

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#### Direction 1

## MEDICAL ASPECTS OF RADIATION EXPOSURE EFFECTS ON POPULATION

## PROJECT 1.1

Dose Reconstruction for the Urals Population

## Dose Reconstruction for the Urals Population

### Summary:

The purpose of the first-year's collaborative research project is to study the feasibility of reconstructing individual doses for the exposed Urals population, especially those persons in the cohort to be considered in Project 1.2.

#### Milestones:

- (1) Preserve and verify the existing database and design a searchable database structure, including software and hardware needed. Include the available archived information related to dose reconstruction. Prepare a report describing the data base design by December 31, 1995.
- (2) Begin calibration of the URCRM whole body counter. Construct a phantom, begin calibration of the counter with the phantom, and prepare a progress report on this milestone by February 29, 1996.
- (3) Prepare a report that will include the methodology for and an assessment of the feasibility of reconstructing the doses for persons in the cohort considered in Project 1.2 by February 29,
- (4) Establish conceptual and mathematical models for sources and pathways of exposure for the Mayak Region population at the St. Petersburg Workshop (June 1995).

(All feasibility project final reports shall be submitted according the Guidelines for Conducting Scientific Research Projects under the Agreement on Cooperation in Research on Radiation Effects, adopted by the JCC RER and revised by the EC 02/16/95).

#### Resources:

The Russian side will provide up to six senior investigators and scientists on a full-time basis. The American side will provide collaborating scientists up to five in number and individual participation, in general, will not exceed 20%.

#### APPROVAL:

The Executive Committee for the JCCRER has reviewed and approved the implementation of Project 1.1 in accordance with the milestones and resources stipulated above.

For the Russian Federation

Leonid A. Bolshov

Co-chairman EC

February 16, 1995

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Harry J. Pettengill

Co-chairman EC

между Правительством Российской Федерации

И

Правительством Соединенных Штатов Америки

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СОТРУДНИЧЕСТВЕ В ОБЛАСТИ ИЗУЧЕНИЯ РАДИАЦИОННЫХ ВОЗДЕЙСТВИЙ С ЦЕЛЬЮ МИНИМИЗАЦИИ ВЛИЯНИЯ ПОСЛЕДСТВИЙ РАДИОАКТИВНОГО ЗАГРЯЗНЕНИЯ НА ЗДОРОВЬЕ ЧЕЛОВЕКА И ОКРУЖАЮЩУЮ СРЕДУ

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#### Direction 1

## MEDICAL ASPECTS OF RADIATION EXPOSURE EFFECTS ON POPULATION

## Project 1.2

Risk Estimation for the Deterministic and Stochastic Exposure Effects and the Results of Actual Observations of the Population Health in the Region of the Industrial Association "Mayak" Risk Estimation for the Deterministic and Stochastic Exposure Effects and the Results of Actual Observations of the Population Health in the Region of the Industrial Association "Mayak"

## Summary:

The objective of this project is to develop a long-term Russian-American collaboration for studying the stochastic effects of chronic environmental radiation exposure. In developing this project, three major objectives have been identified. These will be implemented as separate sub-projects: (a) physical preservation of existing data; (b) evaluation of cancer mortality in relation to radiation exposure among persons living in the vicinity of the Techa River; (c) development of a long-term Russian-American collaborative epidemiologic program for studying the stochastic effects of environmental radiation exposure in populations living near the Mayak Industrial Association.

#### Milestones:

#### Project 1.2a

- (1) Complete inventory of accumulated material on exposed populations. Prepare written documentation describing types of documents, information contained therein, and current storage methods by December 31, 1995.
- (2) Analyze the quality of the records and prepare a written report including recommendations for systematic preservation by December 31, 1995.

## Project 1.2b

- (1) Develop methods and procedures for determining vital status (alive or dead) of the Techa River population through the calendar year for which the most recent information is available. Prepare written documentation of the procedures by September 30, 1995.
- (2) Develop procedures for incorporating more precise estimates of dose from Project 1.1 into the Techa River population database. Prepare written documentation of these procedures by February 29, 1996.
- (3) Develop methods and procedures for identifying a suitable comparison group for the exposed Techa River population. Prepare written documentation of the procedures by October 31, 1995.

### Project 1.2c

- (1) Develop a bibliographic database of population studies for a comprehensive systematic critical review. The data base should be completed by December 31, 1995.
- (2) Develop a summary of results of past epidemiologic studies of relevance to the Techa River basin populations. Prepare a written report by February 29, 1996.

(All feasibility project final reports shall be submitted according the Guidelines for Conducting Scientific Research Projects under the Agreement on Cooperation in Research on Radiation Effects, adopted by the JCC RER and revised by the EC 02/16/95).

#### Resources:

The Russian side will provide up to six senior investigators and scientists on a full-time basis. The American side will provide collaborating scientists up to five in number and individual participation, in general, will not exceed 20%.

## APPROVAL:

The Executive Committee for the JCCRER has reviewed and approved the implementation of Project 1.2 in accordance with the milestones and resources stipulated above.

For the Russian Federation

₩<mark>H</mark>olshov Co-chairman EC

February 16, 1995

Harry J. Pettengill
Co-chairman

Co-chairman EC

между Правительством Российской Федерации

И

Правительством Соединенных Штатов Америки

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СОТРУДНИЧЕСТВЕ В ОБЛАСТИ ИЗУЧЕНИЯ РАДИАЦИОННЫХ ВОЗДЕЙСТВИЙ С ЦЕЛЬЮ МИНИМИЗАЦИИ ВЛИЯНИЯ ПОСЛЕДСТВИЙ РАДИОАКТИВНОГО ЗАГРЯЗНЕНИЯ НА ЗДОРОВЬЕ ЧЕЛОВЕКА И ОКРУЖАЮЩУЮ СРЕДУ

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#### Direction 2

## RESEARCHES ON MEDICAL CONSEQUENCES OF PERSONNEL EXPOSURE TO RADIATION

## PROJECT 2.1

Metabolism and Dosimetry of Plutonium Industrial Compounds

## Metabolism and Dosimetry of Plutonium Industrial Compounds

## Summary:

This is a study to determine the feasibility of comparing analytical data collected by the United States Transuranium and Uranium Registries (USTUR) and the Dosimetry Registry of the Mayak Industrial Association (DRMIA) of the Russian Federation. The kinds of data collected and the methods used to collect those data will also be compared. This feasibility study is designed to be accomplished during a 1-year period, after which a full proposal for a continued collaborative research program between the two organizations will be submitted to the EC.

#### Milestones:

- (1) Complete appraisal of data collected by both registries. Issue a report by September 30, 1995 which addresses the following: comparability of tissue sampling methods; comparability of radiochemical analysis of biosubstrates (excreta and tissue samples); compatibility of data collected by both Registries.
- (2) Determine a unified approach to address the long-term objectives. Issue a report by December 31, 1995 which addresses: compatibility of existing biokinetic models with metabolism data generated by the USTUR and the DRMIA; feasibility for integration of existing biokinetic models on the basis of data collected.
- (3) Explore methods for combining databases of the USTUR and the DRMIA and prepare a report by December 31, 1995.

(All feasibility project final reports shall be submitted according the Guidelines for Conducting Scientific Research Projects under the Agreement on Cooperation in Research on Radiation Effects, adopted by the JCC RER and revised by the EC 02/16/95).

#### **Resources:**

The Russian side will provide up to six senior investigators and scientists on a full-time basis. The American side will provide collaborating scientists up to five in number and individual participation, in general, will not exceed 20%.

#### APPROVAL:

The Executive Committee for the JCCRER has reviewed and approved the implementation of Project 2.1 in accordance with the milestones and resources stipulated above.

For the Russian Federation

Leonid A. Bolshov Co-chairman EC Harry J. Pettengill
Co-chairman EC

February 16, 1995

между Правительством Российской Федерации

и

Правительством Соединенных Штатов Америки

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#### Direction 2

## RESEARCHES ON MEDICAL CONSEQUENCES OF PERSONNEL EXPOSURE TO RADIATION

## PROJECT 2.2

Risk estimation for Stochastic (Carcinogenic) Effects of Occupational Exposure

## Risk estimation for Stochastic (Carcinogenic) Effects of Occupational Exposure

### Summary:

The objective of this project is to conduct an epidemiologic assessment of mortality associated with occupational radiation exposure. The research to be carried out in the course of the implementation of this project includes conducting a cancer mortality study of workers at the Mayak production plant. To provide a basis for risk estimation, new dosimetric data will be carefully integrated with the epidemiologic data. The results from the Mayak worker study will be compared with those from studies of atomic bomb survivors and American nuclear workers.

#### Milestones:

- (1) Establish an effective database for conducting epidemiologic follow-up of Mayak workers. Prepare written documentation describing the content of the database and sources of the data elements by October 31, 1995.
- (2) Develop methods and procedures for determining the vital status (alive or dead) of the workers in the Mayak cohort at the present time, including tracking of those who have migrated from the study area. Prepare a written report documenting these procedures by October 31, 1995.
- (3) Develop procedures for incorporation and validation of radiation dose (internal and external) into the Mayak worker data base. Prepare a written report documenting these procedures by December 31, 1995.
- (4) Develop procedures for identifying a suitable comparison group for the exposed Mayak worker cohort. Prepare a written report documenting these procedures by December 31, 1995.

(All feasibility project final reports shall be submitted according the Guidelines for Conducting Scientific Research Projects under the Agreement on Cooperation in Research on Radiation Effects, adopted by the JCC RER and revised by the EC 02/16/95).

#### Resources:

The Russian side will provide up to six senior investigators and scientists on a full-time basis. The American side will provide collaborating scientists up to five in number and individual participation, in general, will not exceed 20%.

## APPROVAL:

The Executive Committee for the JCCRER has reviewed and approved the implementation of Project 2.2 in accordance with the milestones and resources stipulated above.

For the Russian Federation

Leonid A. Bolshov Co-chairman EC For the U.S.

Harry J. Pettengill

Harry J. Pettengn Co-chairman EC

February 16, 1995

#### **ANNEX II**

## Guidelines for Management, Allocation, Disbursement and Oversight of Support Funds.

#### Scope:

This annex is applicable to all funds transferred by the U.S. DOE to be utilized as part of JCCRER-approved research and administrative activities.

#### Disbursement:

U.S. DOE funds shall be disbursed to the relevant Russian Institutes in a timely manner. If the time for transfer of U.S. DOE funds to the relevant Russian Institutes' accounts affiliated with U.S. banks exceeds 3 weeks after approval by EMERCOM, the U.S. Co-Chair of the Executive Committee of the JCCRER will notify the Russian Co-Chair of the Executive Committee of the JCCRER of the delay and the reason for the delay. No additional semi-annual payments by the U.S. DOE will transpire until relevant Russian Institutes submit to the U.S. DOE or its agent quarterly reports approved by EMERCOM.

#### Allocation:

U.S. DOE funds for April 1, 1995 to March 31, 1996 will be allocated in the following manner:

- Up to 20 percent of funds may be allocated for direct project-related travel;
- up to 40 percent of funds may be allocated for institutional support activities (indirect costs).
- up to 40 percent of funds may be allocated for capital equipment costs associated to the research.

Changes to the above distribution of U.S. DOE funds will be presented by Russian Co-Chair to the U.S. Co-Chair of the Executive Committee of the JCCRER for approval.

Before each semi-annual payment can be obligated by the U.S. DOE, an invoice from the authorizing and responsible individual at each Institute must be sent to the U.S. Executive Committee Co-Chair describing the projected expenditures under the three general categories.

#### Oversight:

Relevant Russian Institutes will provide quarterly reports on the allocation and expenditures of U.S. DOE funds provided to the EMERCOM for presentation to the U.S. DOE.

The U.S. DOE or its authorized agent may visit Russian Institutes as needed, but not to exceed twice yearly, to review the administration of the oversight program and accounting of U.S. DOE funds. It is expected that relevant Russian Institutes will provide available office space and assistance to the U.S. DOE representative while at the Russian Institutes.